

both space research and aeronautical telemetry⁸² involve only a few terrestrial locations. Thus, it should be far more cost-effective, from a public interest viewpoint, for the few operators in those services to protect themselves (if they are vulnerable) from allowable out-of-band emission levels than for DARS licensees to resort to extensive, cost intensive measures.

Feeder Links. In light of the major problems recently encountered in providing for feeder links in the Big LEO proceeding, DSBC recognizes the Commission's concern in the area. However, the problem of feederlinks for the proposed DARS systems should be far less severe than for the Big LEOS. The fact that the same frequencies can be reused in the geostationary orbit should minimize problems of feederlink availability.

DSBC points out that there are no apparent problems with the feederlink bands proposed in its application, even in light of the U.S. proposals for that band (6425-6855 MHz) for WRC-95.

B. Minimal and Flexible Service Rules Will Foster DARS Service.

Licensees should be permitted to determine their own regulatory classification. DARS operators should be permitted to tailor services to meet customers needs and respond to market demands. It is likely that service providers will offer a mix of services that may fall into different regulatory classifications. Thus, regulatory classification would depend on licensee's business choices and the marketplace but may differ, not only among service providers, but among services offered by a single operator. Mandating a particular regulatory

⁸² The U.S. aeronautical telemetry interests have gone to great lengths to protect use of its band 1435-1525 MHz. There should be little use of the band 2360-2390 MHz in the U.S.

classification, and attendant requirements, may artificially and unnecessarily restrict the flexibility of DARS operators.

DSBC supports the Commission's tentative conclusion that subscription DARS services should be permitted to accept advertising. However, the Commission should leave to marketplace demand and the licensee's business judgement whether revenues will be generated by advertising, subscription fees, or some combination of the two.

The Commission Should Refrain From Imposing Public Interest Obligations. DSBC expects that DARS services will develop in a manner similar to cable and DBS which, because of their distribution structure, offer many channels of public interest programming, e.g., C-SPAN, The Learning Channel, Nickelodeon, etc, without regulatory intervention. Similarly, DARS distribution efficiencies and ability to aggregate geographically dispersed audiences permit the economic delivery of niche public interest programming that may be difficult to sustain in mass markets. As a result, DARS will provide significant levels of such programming even in the absence of regulatory requirements.

In any event, the Commission's ability to impose public interest obligations on a non-broadcast service is constrained by *Daniels Cablevision v. FCC*.⁸³ The Commission initially refrained from imposing public service obligations on DBS until instructed by Congress to initiate a proceeding to establish service obligations. However, *Daniels* struck down public interest obligations for DBS because it is a non-broadcast service. A similar analysis appertains to DARS.

Ancillary Services Should be Permitted. DSBC supports the Commission's proposal to

⁸³ 835 F. Supp 1 (D.D.C. 1983) (subsequent history omitted).

permit ancillary services subject to terms and conditions similar to those in the DBS service.

C. Rules Applicable to Licensing Current Applicants.

Intra-Service Sharing. DSBC supports the Commission's band sharing approach. It is a simple and efficient method to avoid imposing complex sharing arrangements on DARS licensees.

Band Segments. DSBC addresses above the Commission's band sharing proposal. The Commission also requests comment on the effects of its band sharing approach on telemetry beacons. The Commission's proposals in regard to telemetry beacons have been considered (proposed Section 25.214(b)(4)). For two primary reasons DSBC suggests an alternative approach: because of the high cost of modifying the worldwide tracking networks required to accommodate telemetry beacons in the DARS band, DARS satellites will need to be equipped with either C- or Ku-Band telemetry beacons for launch and orbit attainment phases of flight; spectrum efficiency regarding the DARS band suggests that alternatives be sought for telemetry beacons for DARS satellites.

Thus, DSBC suggests that DARS satellites be authorized to use the band 3697-3699 MHz for telemetry beacons. This band is part of a Fixed Satellite Service (FSS) primary allocation (3400-3700 MHz) on a worldwide basis. Footnote U.S. 245 to the U.S. Table of Allocations (Section 2.106), however, limits the FSS use of the total band to international, inter-continental systems, subject to case-by-case electromagnetic compatibility analysis. It should be noted at this time, Intelsat, Inmarsat and numerous non-U.S. domestic satellite systems make use of all or large portions of this band for communications services. DSBC believes that the small segment (2 MHz) of the band proposed above would be suitable for

DARS satellites and could be readily coordinated for that purpose, thereby retaining the total DARS band for service links.

Frequency Assignments. DSBC supports the Commission's decision to authorize specific satellite DARS frequency assignments upon grant of licenses.

Interim Frequency Assignments. DSBC supports the Commission's conclusion refusing to authorize interim use of other licensee's frequency assignments. It is not necessary, it is disruptive and contrary to the public interest.

Financial Qualifications/Milestone Requirements. DSBC agrees with the Commission proposal that applicants submit evidence of financial capability to construct launch and operate for one year and that within one year of grant they demonstrate full funding. DSBC also agrees that estimated revenues from proposed operations should be permitted to support the initial showing.

Miscellaneous Issues. The Commission's proposed changes to Section 87.303(d)(1) are generally acceptable so long as no changes are made to 25.202(f) for DARS service. It is suggested for the purpose of clarity, the last sentence of proposed Section 87.303(d)(1) be changed to read as follows: "In the 2360-2390 MHz band, all other telemetry and telecommand uses are secondary to the above stated launch vehicle uses."

VI. CONCLUSION

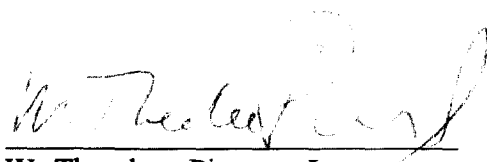
There are four applicants ready, willing and able to compete with each other to initiate innovative Digital Audio Services by satellite. Their applications have now been waiting five years for a Commission decision. They have spent tens of millions of dollars themselves, induced the spending of as much probably more by their satellite manufacturing partners and

committed untold hours of time, in faith that the sufficient members of the public will find DARS attractive and fulfilling and in reliance upon Commission precedent that they would have a fair opportunity to be licensed consistent with past approaches in satellite licensing and commensurate with their efforts and patience.

The time is long overdue for the Commission to act quickly to adopt comprehensive but flexible rules, as suggested herein and in the Joint Comments submitted simultaneously herewith, and immediately commence the processing of these four applicants.

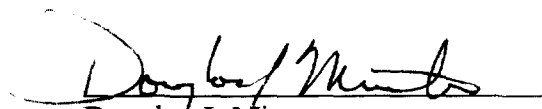
Respectfully Submitted,

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September 15, 1995

Economic and Financial Aspects of U.S. Commercial Radio Broadcasting

Statement of
Dr. Larry F. Darby
Darby Associates
Washington, D.C.

To Accompany

Digital Satellite Broadcasting Corporation Comments

FCC Notice of Proposed Rulemaking
Establishment of Rules and Policies
for the Digital Audio Radio Satellite Service
in the 2310-2360 Frequency Band
Gen. Dkt. No. 90-357

September 15, 1995

DARS -- Executive Summary

The Commission earlier this year issued a Notice of Proposed Rulemaking designed to establish rules and regulations to govern the provision of satellite digital audio radio service (DARS) in the 2310-2360 frequency band. This paper addresses some economic and financial issues raised by the Commission.

Radio is a remarkable industry -- fully mature after three quarters of a century, it has successfully maintained its market vigor and financial vitality in the face of enormous technological turbulence marking its path. Radio has had some "poorer" times than now, temporarily provoked by economic recession, and its growth has been temporarily, and modestly, slowed by the advent of television. But, its innate creativity as a medium of entertainment and information, and the imagination of generations of radio managers have kept it on a steady, healthy long term growth path. Radio's publicly traded equities are excelling in extremely competitive capital markets, and outperforming many high-flying, high-tech, glamour stocks of the 1990s. It is generating cash flow at rates that are unprecedented, in relation to its own history and to that of other sectors of the economy. It has both the time and the financial wherewithal to compete successfully without the protective intervention of the federal government.

Notwithstanding persistent and unequivocal claims about the likely harm to "localism", we have been able to find no credible data, analysis or other evidence establishing that new technologies that provide consumers' additional leisure time options have diminished the supply of "local" or "community" programming by broadcasters. Pending our review of the economic analysis to be submitted by radio broadcast interests in response to the Commission's requests, we have relied on available indirect and impressionistic evidence to reach our conclusion that the threat to "localism" from DARS has been grossly exaggerated and in no way substantiated.

Forces Shaping the Industry. Radio broadcasting is not immune from the effects of the broad forces shaping the communications marketplace -- advances in computer technology, development of new transmission technologies, digitization, increased entry and competition, deregulation and other developments. However, three forces -- growth, supplier adaptation, and consumer and advertiser loyalty to the radio medium -- have been and will continue to be particularly important in the development of this industry and its adjustment to entry of satellite DARS.

Growth in the U.S. economy and the Communications sector have combined with strong and enduring consumer preferences for the radio medium to propel almost uninterrupted growth in radio revenues over the past seventy years. Notwithstanding the potential introduction of DARS and other technologies, the radio sector is forecast to grow faster in the next five years (7.2% compound annual growth) than either the Communications Sector or the national economy. Industry revenue is expected to double by 2005, while new technologies are being tested in the market place

The long term historical success of radio broadcasters has been attributable to their persistent and careful adaptation to technological, regulatory and market change. Predictions of the demise of radio have accompanied news of the introduction of most new

entertainment and information distribution technologies -- including FM radio, television, stereo component systems, VCR technology, cable television and audio services, compact disc technology, and others. Yet, radio station managers have quite successfully responded by adopting new and diversified formats; by cutting costs; by identifying new market niches; and, by otherwise exploiting their inherent strengths in the local marketplace and adjusting to the changing needs of advertisers and listening audiences. They are adjusting along those lines now and are likely to continue the pattern into the future.

Their success is apparent. After intermittent and modest declines in the late 1980s and early 1990s, the index of radio listening has been climbing again and is expected to continue to do so until at least the end of the decade -- the latest year for which reliable forecasts are available.

Advertisers and consumers have been remarkably loyal to the radio broadcasting medium and the services it provides. With very few exceptions, advertisers have maintained steady growth of nominal expenditures through good times and bad. Despite introduction of new technologies and diverse new services competing with radio for consumers' time and attention, the share of radio of all measured media advertising has remained remarkably stable at about 10% over the past twenty years. Radio is forecast by experts to increase its share through 2000. Radio broadcasting is a thriving industry by any measure of current market strength; it has overcome several difficult technological and market challenges; and, it is well positioned with consumers and advertisers to ensure its future growth.

Financial Condition and Outlook for Radio. Radio's financial condition reflects its underlying fundamental strengths with advertisers and consumers. Cash flow margins are substantial, posting averages for the 1984-1994 period in excess of 33%, 25% and 11% for large, medium-sized and small stations, respectively. Some larger stations have posted 50% and 60% margins in recent years. These cash flow margins are quite out of the ordinary and compare extremely well with average cash flow margins for the S&P 500 (15%) and the Veronis, Suhler Associates index of the "Communications Top Fifty" (22%) over roughly the same period. Station margins have grown since the 1991 recession. Margins are likely to continue to be healthy and post at least modest future growth as new cost cutting avenues are explored.

Investors are paying large and growing multiples of cash flow in a growing number of radio deals, thereby reflecting the confidence of investors and financial markets in the future of radio. Acquisition prices averaged more than 10 times cash flow and more than three times revenue in 1994. Both multiples reflect euphoric expectations about radio's future. Stock prices in pure radio station plays have doubled twice in four years, dwarfing the performance of broad market averages, even though the anticipated impact of DARS is being fully capitalized by investors.

Impact of the Introduction of DARS. Established law, the Commission's rules and its Notice place the burden of proving harm of an economic, financial or broad public interest nature squarely on those who claim the existence of such harms. Research and analyses undertaken for this paper find no well reasoned basis for quantifying or even expecting

substantial harm of any variety. To the contrary, experience in other regulated industries and elsewhere with new technology-based competition provides ample reason to anticipate significant gains in economic welfare from the introduction of new competition into this marketplace. The Commission's competitive policies in other arenas clearly presume net competitive benefits attributable to increased efficiency and diversity in consumer choices; and, the Commission is clearly satisfied that presumptions favoring competition have been warranted by the performance of markets and firms under its purview. There is no clear reason to expect DARS to be an exception to this general rule.

Under most reasonable market development scenarios, DARS will have virtually no measurable effect on radio broadcasters until after 2005, by which time the local radio industry will be roughly twice as large as it is today and garner revenues in the 20 billion dollar range. Various regulatory, operational and market-penetration lags will assure incumbent radio broadcasters plenty of time to adapt, as they have done so successfully in the past, to the appearance of new choices for consumers from DARS and other new local delivery means.

In view of the enormous cash flows being generated by the industry, incumbents not only have time to prepare for competition, but they are currently generating the financial wherewithal to do so. Over the next decade, the industry's radio operations will generate billions and billions of dollars that may be applied in whatever ways are required to prepare for the introduction of DARS and other new distribution technologies. The power of incumbency is substantial. Strategic use of the cash available will ensure that traditional radio will be a formidable competitor.

Incumbents claim that competition from DARS and other sources will increase risk for investors in broadcast properties. Under some scenarios, new technologies may reduce returns for investors who have paid high premia for licenses. However, rational investors are aware of the risks and recent transactions indicate that the market is not demanding premia to compensate for expected DARS entry. Investors seeking upside gains in radio station properties have no valid claim to Commission protection from downside risks. Current station values reflect capitalized scarcity rents that are in large part attributable to the scarcity of radio licenses. In this context, and to the extent that DARS, or some other technology competitive with radio, may in the future reduce those station values, there will be no necessary reduction in the number of stations, since the value of licenses can be written down and capital carrying costs on a going forward basis reduced accordingly. Such recapitalization is not rare. It is a normal financial response to technological and market change.

The industry has proved that it can stand on its own and that it will survive and grow. There is no basis for shielding it from the challenge of new technology; nor, for stripping consumers of new entertainment and information services options. The Commission has no statutory or other public interest basis for protecting the values of artificially scarce radio licenses acquired in anticipation of financial gains by investors in command of full knowledge of the risks involved. The Commission has established competition as the rule, with protection from entry the exception to be justified. It now needs only to apply the rule.

I. Introduction

In its Notice of Proposed Rulemaking designed to establish rules and regulations to govern the provision of digital audio radio service in the 2310-2360 frequency band, the Commission has spelled out details of its concern for the economic impact of DARS on the broad public interest, as well as on particular components of the public interest, including the financial health of stations and their ability to provide services of a "local" nature.

This purpose of this paper is to discuss the broad economic and financial market environment within which DARS will be introduced and the services with which they will compete. More particularly, the paper will respond some of the specific economic and financial impact questions raised by the Commission in its NPRM.

The analysis below addresses three basic questions:

- What forces are shaping the radio broadcasting industry?
- What is the financial condition and outlook for the radio industry?
- What impact will timely and unfettered introduction of DARS have on:
 - General economic welfare?
 - Financial viability of broadcasters?
 - Achievement of statutory goals of radio regulation?

II. Powerful Forces Are Shaping Commercial Radio Broadcasting

The potential impact on traditional commercial radio broadcasting of new radio programming distribution technologies, digital audio radio programming delivered by satellites and others, will be realized in the context of the broader forces that are shaping the basic structure of the industry and the behavior and performance of firms within it.

The effects of technological, regulatory and market change on industries and firms in communications and information industries have been widely and variously noted. Advances in computer technology, development of new transmission technologies -- from satellite to cable and other wireless means -- increased entry and competition, deregulation and other developments are dramatically transforming the communications marketplace.

Radio broadcasting is not immune from the effects of these broader changes, but it is beyond the scope of this paper to detail their effects on broadcasters. However, It is important for present purposes to identify and discuss three forces that have been particularly important in the development of this industry and will continue to shape it in the future. These forces are: growth, supplier adaptation and loyalty to the radio product by consumers and advertisers. Thus, radio broadcasting has been and

will continue to be shaped in large part by:

- a) Growth in the economic environment -- the overall U.S. economy and the communications industry sector -- in which radio broadcasters operate;
- b) Adaptation of radio broadcasters to technological, market and regulatory change; and,
- c) Secular loyalty of advertisers and consumers to the radio broadcasting medium and the services it provides.

II. A Radio Broadcasting Shares in the Growth of the Economy and in the Increasing Importance of the Communications Sector

Commercial radio broadcasting, the oldest form of electronic mass communications, began this century as a laboratory curiosity and will end it as a very successful, multibillion dollar industry reaching nearly all the Nation's homes, workplaces and vehicles moving between and among them.

Radio is everywhere. Households average about five receivers per family. There are now approximately 11,500 commercial radio stations on the air -- roughly ten times the number of commercial television stations and more than seven times the number of daily newspapers. While the number of newspapers has been shrinking, and the number of commercial television stations holding steady, the number of commercial radio stations has been increasing in recent years. In many smaller communities radio has replaced newspapers as the principal source of local news.

With revenues of over \$10 billion in 1994, radio broadcasting is nearly as large as the recorded music industry and roughly one-third the size of the entire filmed entertainment industry. Radio broadcaster revenues are derived from the sale of advertising time to local, regional and national businesses. The value of radio advertising time to businesses is determined in part by the number and demographic characteristics (age, wealth, purchasing habits, etc.) of the expected listening audience at the time the advertising material is aired. Thus, radio broadcasters select and present programs and program formats designed to attract audiences whose consumption behavior and spending patterns will in turn attract advertisers. While the number and demographic characteristics of listeners is an important determinant of expenditures by business to purchase advertising time on radio, audience is by no means the exclusive determinant of the willingness of business to buy radio time.¹

¹ The decision of firms to promote the sale of products or services by advertising (by buying radio time or otherwise) is a very complex one that depends on, and is made in the context of, the firm's larger competitive strategy -- a strategy which typically involves consideration of the impact of price changes, the overall health of the firm, the firm's expected growth, its expectations about rivals marketing strategies and

TABLE 1

Trends in Radio Station Advertising Revenues 1976 to 1994 and Forecast to 1999

	Local Advertising (% CAGR)	National Advertising (% CAGR)	Total Advertising (% CAGR)	Radio Share of Measured Media Advertising
1976	16.8	18.8	17.3	10.0
1977	14.3	5.4	12.2	9.9
1978	17.1	13.6	16.3	10.0
1979	8.7	7.3	8.4	9.6
1980	10.3	7.1	11.7	9.8
1981	13.9	2.8	13.7	10.0
1982	11.9	5.0	10.4	10.1
1983	11.0	12.5	11.3	9.8
1984	10.9	15.3	11.9	9.5
1985	11.4	11.5	11.4	9.9
1986	8.1	1.0	6.5	9.9
1987	5.5	-1.3	4.1	9.7
1988	9.0	6.6	8.5	9.8
1989	5.8	9.1	6.4	9.9
1990	4.9	5.7	5.1	10.2
1991	-3.0	-3.7	-3.1	10.3
1992	4.9	4.4	3.1	10.2
1993	9.2	10.1	9.3	10.7
1994	9.0	8.6	8.9	10.7
(Est.) 1994-99	7.4	6.6	7.2	11.3

Source: Veronis, Suhler & Associates Communications Industry Forecasts: (9th ed., 1995)

Table 1 documents the history of radio broadcasting advertising revenues over the past two decades. By 1976, some 40 years after the NBC first began to transmit experimental signals from the Empire State Building and the first year for which data are reported in Table 1, radio stations reached well beyond \$2 billion in annual advertising revenues. These revenues grew at a double digit rate over the next decade and in every year except 1979, as the number of stations increased dramatically, listening audiences increased and businesses became more aware of the value of local

tactics, and a host of other considerations. A broad overview of competitive behavior is found in Michael Porter, Competitive Strategy -- Techniques for Analyzing Industries and Competitors, The Free Press; New York (1980), especially chapter 5 "Competitive Moves"

radio advertising. Growth in radio advertising revenue has continued since 1985 at a substantial rate and has averaged nearly 6% per year since then. Average growth since 1985 has been dampened substantially by the 3.1% decline in revenues in 1991, the only decline from one year to the next in the past two decades.²

The last row of Table 1 indicates the expectations of widely recognized experts in the field that advertising expenditures and receipts will increase by over 7% compounded annually over the next five years.³ Thus, Veronis, Suhler projects a normal growth path that replicates recent trends, without the 1991 statistical outlier. We note also that radio's share of all measured media advertising has been remarkably consistent, hovering around 10% for the past two decades.⁴ Radio's share has been increasing modestly over the past five years and is expected to continue on its recent upward trend line to average over 11% for the next five years.

In short, commercial radio broadcasting station revenue has been for some considerable time growing at robust rate -- a rate that is expected to continue for the

² The persistent growth of radio advertising revenues was interrupted in 1991 by a combination of two factors. Local advertising expenditures by business were down for all media in that year because of the general recession and, more particularly, by the difficulties facing local retailers, especially the department store chains. Indicators of macroeconomic activity, with which advertising expenditures are correlated, like real GDP, gross private domestic investment, consumer spending on durable goods and the level of business inventories were all down for the U.S. economy in 1991. See, for details, Economic Report of the President, February 1995, Table B-2. Further, a number of major department store chains encountered rising debt service costs as a result of excessive leverage on balance sheets and responded to margin squeezes resulting from reduction in demand and increased costs by cutting back on local advertising expenditures. For a fuller discussion of the effects of the general economic environment on broadcast revenues, see Veronis, Suhler & Associates, The Veronis, Suhler & Associates Communications Industry Forecast, ninth edition, 1995, pp. 72-77. Thus, it is not unfair to regard this dip as a statistical outlier brought about by the unlikely confluence of three negative factors: recession, excessive leverage and unsustainable debt service costs, and general economic stress in a sector (department stores) that provides a major source of local advertising revenue to a broadcaster. This combination of circumstances might reasonably be regarded as a likely nonrecurring event and discounted as such in valuations of the future of radio broadcasting.

³ Other analysts anticipate similar growth. For example, the media equity analysts at Alex. Brown & Sons have recently projected commercial radio station revenue growth 7.5% per year over the next five years. See, Alex Brown & Sons, Andrew W. Marcus and Eric R. Stewart, Media Bulletin: American Radio Systems Inc. -- Initiating Coverage of Rapidly Growing Radio Broadcaster with "Buy"; July 5, 1995, p. 5. Paul Kagan Associates are also very bullish on radio broadcasting. Noting that ad revenues increased by 14% in 1994, they look forward to "... continued strong ad growth, tempered only if the economy slows." (Radio Station Deals..An Overview, Paul Kagan Associates 1995 p. 5)

⁴ Measured media advertising refers to advertising on radio and television (including cable television and barter syndications), and in magazines and newspapers. Non-measured media advertising encompasses direct mail, Yellow Pages advertising, advertising in weekly newspapers, outdoor advertising and a variety of other miscellaneous forms -- sports or event sponsorships, promotions, point of purchase coupons, trade shows and the like. In 1994, measured media advertising was about one-third (\$91.7B) of the total of all advertising and promotions (\$271.4 B) in the U.S. See, Veronis Suhler & Associates Communications Industry Forecast, 1995, p. 72

rest of this decade. And, indeed, the forecasts are corroborated by revenue growth of over 11% posted for the first six months of this year.⁵

There are several reasons for the growth of commercial radio. The industry is sharing in the surge of demand for communications services more generally. Growth in the communications sector generally is being fueled by secular forces generated by growth of the larger economy; changes in communications technology; changes in regulation; and, changes in both market supply and market demand. These same general forces are propelling growth in radio broadcasting more specifically.

The secular strength of radio broadcasting is also attributable in large part to its own inherent strengths vis-a-vis the changing array of alternatives in the marketplace, but its long term growth can be fully understood only by recognizing that commercial

TABLE 2

Recent and Projected Growth Rates of Selected U.S. Economic Aggregates

	1989-94 (% CAGR)	1994-1999 (% CAGR)	Future Growth Index
Nominal GDP	5.1	5.3	74
12 Largest U.S. Industries	5.9	5.5	76
Telecommunications	9.8	7.9	110
Electronic Equipment/Parts	7.1	9.4	131
Communications Sector	5.2	6.8	94
Measured Media Advertising	3.0	5.7	79
National	3.8	5.9	82
Local	2.4	5.5	76
Radio Advertising	4.3	7.1	99
Stations	4.5	7.2	100
Networks	.8	3.9	54

Source: Veronis, Suhler & Associates; Wilkofsky Gruen Associates; U.S. Department of Commerce; Darby Associates

⁵ Broadcasting & Cable, "Midyear Review: Radio Groups Pass With Flying Colors", August 14, 1995, p. 28. The article reviews the financial performance of the the principal publically traded radio stocks for the first half of 1995. Citicasters reported a 29.3% increase in cash flow, while Clear Channel reported a 46% cash flow increase. CS First Boston stock analyst Harry DeMott summarized the group and noted its "stronger than expected performance". He explained further, "...throughout all the radio groups, each and every one outperformed expectations for the first half of the year." Infinity Chief Financial Officer Farid Suleman observed that second quarter 1995 results marked the 15th consecutive quarter of "record financial results" since Infinity went public in 1992.

radio broadcasting is part of a growing sector in a growing economy. It is as if radio broadcasting is riding a wave on a wave. Economic growth and diversification in the economy at large fuels growth in the Communications Sector and both are driving forces in the growth of radio broadcasting.

Table 2 has been constructed to help illuminate these general observations. The table compares compound annual growth rate of revenue in various sectors for the five year period preceding 1994 and expected growth rates for the following five years. The purpose of selecting this data and organizing it in this way is to permit comparison of historical and prospective radio advertising revenue performance with that of other related aggregates.

As indicated above, the growth in radio station advertising revenues from 1989 to 1994 was distorted by the sour economy in 1991.⁶ While the economy grew in nominal terms by more than five percent annually over that five year period and the Communications Sector grew at about the same rate, measured media advertising grew at a substantially slower rate of three percent. The growth in local measured media advertising, the source for over 80% of radio ad revenues during the period, was much less than the growth in either GDP or in total measured media advertising.⁷ Thus, while the recession diminished radio station revenue growth (4.5%) to a level below the growth in nominal GDP (5.1%), station ad revenue still grew faster than measured media advertising (3.0%) of which it is a part and substantially faster than the pool of local measured media advertising (2.4%) from which station's draw most of their advertising support.

Data presented in the table also permit comparison of analysts' expectations about the future. Of course, a sharp recession would undermine the macroeconomic assumptions on which all these estimates are based. Notwithstanding that possibility, growth over the next five years in these aggregates is expected to show a rather different story from the recent past. Radio station advertising revenue is projected to grow by 7.2% per year from 1994-1999 and thereby exceed expected growth in all the other aggregates in Table 2 and substantially outstripping in both GDP and local measured media advertising.

For ease of comparison, we have calculated an index of expected growth, using the 7.2% forecast for radio station advertising revenue growth as the base 100. The radio growth index exceeds that of total gross domestic output; the twelve largest U.S. industries according to Department of Commerce definitions; the broad communications

⁶ Paul Kagan Associates described the phenomenon: "By 1991, a sluggish economy knocked the wind out of ad spending, radio's life blood." Paul Kagan Associates, Inc., Radio Deal Record, "Radio Station Deals...An Overview", p. 3.

⁷ Local radio station advertising revenue totalled about \$35 billion for these years, while the total, including national spot revenues, was over \$43 billion, according to Veronis Suhler. (Calculated from data on p. 136.)

sector of which radio is a part; both national and local measured media advertising; and, network radio advertising. While radio advertising growth is expected to exceed the aggregate of the 12 largest U.S. industries, it falls short of the expected growth of two of those sectors; the telecommunications sector (the Nation's second largest) and the electronic equipment and components sector (soon to be the Nation's largest, according to the Commerce Department).

II. B Broadcasters Have Been Remarkably Successful in Adapting to Technological Change and the Availability of New Alternatives for Consumers.

The foregoing describes the development of the medium over the past two decades. What is not captured by merely tracing the path of industry growth is the numerous and persistent challenges to its growth and survival posed by powerful and assorted technological and market changes. The industry has confronted, adapted to and effectively overcome all of these challenges on the way to posting its solid record of long term growth.

The first challenge to radio was an internal one and came from, of all places, improvements in radio technology.⁸ The introduction of frequency modulation techniques permitted a challenge to AM radio and the Federal Communications Commission indicated at one point that FM might replace AM. But, the number of AM stations grew and it was not until the mid eighties that the number of FM stations surpassed the AM number. And, more recently, AM has staged yet another resurgence derived in large part from migration to a new (talk show) format.

Radio broadcasters have traditionally adjusted to new technology and new competition by developing new formats and exploring market niches that exploit their inherent economic and technological advantages. Thus, radio fought off the challenge of both black and white, and color, television, increasing its growth past the introduction and rapid growth of the new mass communications medium. The staying power of radio has been widely noted. In its "Telecom 2000" review of commercial radio broadcasting, the National Telecommunications and Information Administration observed: "While many thought the advent of television would wipe out the radio

⁸ There are numerous good histories of the development of radio available. Our claim on the readers attention may be lost by an effort to summarize, however tersely, the history of the industry and its adaptation to varied technological challenges and assorted economic crises. However, the interested reader should certainly consult the excellent history by Christopher H. Sterling and John M. Kittross, Stay Tuned -- A Concise History of American Broadcasting, Wadsworth Publishing Company, Belmont, CA 1990 second ed. We found it helpful to consult the table of contents and pick out the sections dealing with radio and reading selectively the parts describing radio's adaptation to FM, the Depression, the introduction of LP records, the growth of television, introduction of VCRs, radio's development as a national advertising medium, development and change in network relationships, development of national advertising, local advertising wars, countless format experiments and innovations, and so on and on. The history is truly fascinating reading which leaves no doubt of the resiliency of the industry.

industry, in many ways radio is stronger than it was a generation ago."⁹

Radio broadcasters have responded to new technological competition in several ways, the most important of which has been reflected in adaptive changes to the basic product -- the basic programming format. In some very essential respects "intramedium" competition among radio stations in the same market is more important to the survival and growth of a station than is "intermedia" competition from other technology based news, information and entertainment services. Casual empiricism from sampling the dial in various locations around the country confirms that competition is vigorous in urban areas, with managers jockeying for audiences and ratings, using a variety of means -- a very important one being modifying the format to meet existing or evolving audience tastes.¹⁰ In rural markets, however, the menu is leaner.

A decade ago there were only a handful of radio formats, whereas today, there are nearly two dozen distinct and recognizable basic formats. Station managers, of course, may and do experiment with countless marginal variations of basic formats.

The data in Table 3 will suggest several conclusions. The table indicates the broad diversity and identity of station formats; it indicates the substantial amount of flux in programming formats as numerous stations change from one year to the next; and, finally the table suggests which formats are gaining support and which are losing.

Formats are change for different reasons, but the common link is to attract and keep listening audiences that are attractive to advertisers. The tools of competition available to managers are fairly limited and the most effective means, by far, is to attract listeners in sufficient sizes, with favorable demographics, to lure advertisers' dollars. The business of radio broadcasting is to produce audiences of different kinds, of different magnitudes at different times. The attention of these audiences is then sold to advertisers. The means for producing audiences is the selection of program formats and individual programs.¹¹

⁹ NTIA Telecom 2000 -- Charting the Course for a New Century, National Telecommunications and Information Administration, U.S. Department of Commerce, October, 1988 (U.S. Government Printing Office: Washington, D.C.) p 515.

¹⁰ See also Veronis, Suhler, p.38

¹¹ An excellent tutorial on the basic economics of broadcasting is contained in the introduction to a recent book on the economics of video distribution: Bruce M. Owen and Steven S. Wildman, Video Economics, Harvard University Press, 1992, pp. 3-16. While the description basically applies to broadcast television, the analysis fits radio broadcasting remarkably well. "The first and most serious mistake that an analyst of the television industry can make is to assume that advertising-supported television broadcasters are in business to broadcast programs. They are not. These audiences, or means to access them, are sold to advertisers. The product of a television station is measured in dimensions of people and time. The price of the product is quoted in dollars per thousand viewers per unit of commercial time, typically 20 or 30 seconds...[a]dvertisers are interested in demographics -- age, sex and income composition of the audiences, [since] some audiences of a given size are more valuable than others. (pp. 3-4)

TABLE 3

Radio Diversity and Format Changes (1989 to 1994)

Format	1989 Stations	1994 Stations	% change 1993-94	Station Distribution (1994)
Country	2,230	2,591	11.7%	27.4%
Adult Contemporary	1,954	1,452	-25.7	15.4
News/Talk	398	1,094	174.9	11.6
Religious	668	846	26.6	9.0
Golden Oldies	701	756	7.8	8.0
Standard/Big Band	456	356	-21.9	3.8
Classic Rock	126	342	171.4	3.6
Top-40	733	337	-54.0	3.6
Album-Oriented Rock	305	306	0.3	3.2
Spanish	208	293	40.9	3.1
Urban Contemporary	188	241	28.2	2.6
Soft Contemporary	167	175	4.8	1.9
Easy Listening	294	136	-53.7	1.4
Alternative/Progressive	27	113	318.5	1.2
Full Service	27	84	211.1	0.9
Variety	74	67	-9.5	0.7
Ethnic	37	60	62.2	0.6
All News	38	57	50.0	0.6
Black\Rhthm & Blues	34	53	-36.9	0.6
Classical	50	44	-12.0	0.5
Jazz	28	24	-14.3	0.3
Business	39	12	-69.2	0.1
Total	8,922	9,949	5.8	---

Source: Veronis, Suhler & Associates; Wilkofsky Gruen

The resilience of radio in the face of new technologies and market challenges is aptly described by a recent view of the broader industry segment of which it is a part:

“The Communications Industry in many ways behaves against intuition. Industry segments battered by competition and declines in market share not only survive but evolve and expand; new segments emerge and become established without supplanting the segments they appear to

replace;....and, in the Communications industry, mature companies in mature industries retain high margins, and these margins show no signs of decline. In short, the Communications Industry appears to defy the theory of industry life cycle. Mature segments retain healthy margins; traditional media prosper despite the emergence of new media; and segments characterized by high risk are remarkably stable."¹²

II.C Consumers and Advertisers Have Shown Long Term Loyalty to Radio Broadcasters

A previous section documented with some measures the strength of advertisers' commitments to commercial radio broadcasting. The loyalty of advertisers to the commercial radio medium is so strong that radio revenue from advertisers has grown almost continuously over the past seventy years with only small, infrequent and short-lived interruption brought about by combinations of circumstances that are not often replicated.¹³

Table 4 presents data detailing selected radio listening characteristics. These data confirm a strong degree of consumer loyalty toward commercial radio. They also indicate clearly why there is continued strong advertiser support for the medium in the face of significant diversification and growth in the number of consumer news, entertainment and information options. Despite the new consumer options occasioned by the introduction and increased penetration of cable television, satellite dishes, compact discs, computer on-line services, VCRs, video games and other consumer electronic product innovations, consumers remain loyal to commercial radio in numbers reflecting their broad historical average. While the data indicate a short term dip in listeners in mid eighties, much of the lost audience has been recovered subsequently. The forecast data indicate that listeners will continue to return to radio in the 1995-1999 timeframe.

¹² Veronis, Suhler & Associates, Communication Industry, p. 35.

¹³ Commercial radio revenue data going back to 1927 estimated and compiled by Sterling and Kittross (Stay Tuned, see note 8 above) indicate that radio advertising also declined temporarily in the early 1950s and again for one year in 1961. Both incidences were related to economic recessions and/or distress in parts of the retail sector. These exceptions, however, merely confirm the rule that radio broadcasting is a secularly vibrant industry for the nearly seventy years for which its health has been reliably measured. (pp. 516-17.)

TABLE 4

Index of Selected Radio Listening Characteristics* (1981-1994)

	AM Stations	FM Stations	At-Home	Out of Home	All Stations
1981	100	100	100	100	100
1982	94.5	114.3	104.8	108.2	106.1
1983	82.7	114.9	97.7	107.4	101.6
1984	74.6	119.4	93.4	111.8	100.9
1985	68.7	123.5	92.8	112.3	100.9
1986	65.0	119.2	85.3	113.5	96.8
1987	58.0	119.3	76.4	119.5	93.9
1988	56.5	124.1	76.9	124.2	96.2
1989	54.4	125.4	75.3	126.2	96.1
1990	53.3	125.1	72.3	129.1	95.4
1991	53.9	123.3	70.4	129.8	94.6
1992	52.0	130.6	73.1	134.6	98.1
1993	49.7	123.8	67.3	130.9	93.2
1994	47.5	130.0	66.2	139.1	95.9
1995	47.0	130.7	65.7	141.0	96.1
1996	46.7	131.7	65.6	141.8	96.6
1997	46.0	132.4	64.8	143.1	96.7
1998	45.5	133.1	64.1	144.6	96.9
1999	45.0	133.8	63.4	146.0	97.1

Source: Veronis, Suhler & Associates, Center for Radio Information; Wilkofsky Gruen Associates; Darby Associates. (* Persons age 12 and older reached in an average quarter-hour.)

II. D Summary of Forces Shaping Radio Broadcasting

Growth, adaptation and consumer/advertiser loyalty explain the remarkable secular performance and staying power of radio in the face of technological change. The head of the National Association of Broadcasters said it best:

"We all remember being told that the onset of FM would be the death of AM and that the onset of television would be the death of radio. And, now that the plethora of new technologies will be the death knell of local stations. My friends, the death knell for radio has sounded before -- but, as you well know -- radio has refused to answer that call. That's because of the creative genius of our radio operators.

The ingenuity of our radio operators has forged even stronger relationships with the audience and as long as we provide the public with relevant programming, I predict America's love affair with radio will only be enhanced."¹⁴

III. What is the financial condition and economic outlook for the radio industry?

There are several ways and measures for assessing current and prospective financial conditions of commercial entities like radio broadcast stations. Previous sections indicate that the market for the radio broadcast product (audiences) and revenue from the sale of the radio product (advertising dollars) are both quite strong. And, in view of the favorable outlook projected by analysts for both audiences and advertising dollars, discussion of the previous sections has provided the basis for some considerable optimism about the financial and economic outlook for the industry. But, we will look more broadly and deeply in this section

A full assessment is well beyond the scope of this paper, as it would require a detailed accounting of costs, operations management and the idiosyncrasies of individual market histories and anticipated circumstances. We will leave that to radio proponents who have access to may have better access to detailed and up-to-date information and focus here more generally on a broader assessment.¹⁵

In addition to rates of growth of revenues and margins, detailed above, investors in local radio stations are concerned for the same factors that motivate all investors -- security of their wealth and the income from the their investments.

Investors in radio stations typically take cash flow as the relevant measure of wealth currently being generated by radio property and base their assessments of current value on their expectations of the future streams of cash likely to be available from station operations. Cash flow is calculated as the difference between revenues and operating costs. Table 5 summarizes recent cash flow trends for stations of different sizes -- small, medium and large -- over the past decade. The number used to

¹⁴ (Remarks of Eddie Fritts, President, National Association of Broadcasters to "Radio 95", September 7, 1995, page 3)

¹⁵ We have reviewed carefully the most recent Radio Financial Report published by the National Association of Broadcasters. The Report presents costs and relative costs (as a percent of the total) in various broad business categories -- engineering, program and production, news, sales, advertising and promotion, and G&A -- across companies of different sizes and types. These data may be of considerable interest for a broad range of cross sectional, company comparisons of operating costs. However, for purposes of financial analysis of the industry today, the data are nearly four years old and the last year reported, 1991, was a recession year. Thus, for time series analysis of radio financial conditions, the data on revenues, cash flows and pretax profit in the Financial Report are biased and not very useful for present purposes. We are looking forward to analyzing the data in an updated version.

represent cash flow here is "cash flow margin", which is cash flow as a percentage of operating revenue (advertiser sales net of commissions).

TABLE 5

Radio Station Cash Flow Margins by Station Size

	Large Stations	Medium Stations	Small Stations
1984	33 %	30 %	11 %
1985	37	29	13
1986	27	25	5
1987	28	27	10
1988	33	28	12
1989	43	25	13
1990	31	19	7
1991	30	19	9
1992	32	23	10
1993	34	25	11
1994	37	30	17
Average 1984-94	33%	25%	11%

Source: Paul Kagan Associates, Inc. Large, medium and small stations are defined by PKA as having net revenues of \$8-10 million; \$3-5 million; and, \$0.25-0.75 million, respectively.

The data in the table are largely self explanatory. Cash flow margins in radio are quite substantial by most standards and, according to Paul Kagan Associates, the authors of Table 5, "...are some of the highest in any media."¹⁶ PKA also point out that these numbers are averages and that there is considerable dispersion about these means, with several large stations enjoying operating margins in the 50% range and "...an elite few in the 60% range". While there has been some fluctuation about the means for each size station over time, the trend for stations of all sizes has been upward, since the 1991 recession. For medium and smaller stations, cash flows were at an all time high in 1994, while for the largest stations their 1994 level has been exceeded only once previously (in 1989).

Investors are forward looking. Historical performance of radio broadcasting revenues, audiences and cash flows only have relevance as a guide or indication of

¹⁶ Paul Kagan Associates, Inc. Radio Station Deals. An Overview, 1995, p. 5

what might be expected in the future. Investors look at past industry performance, as well as to the future for regulatory, technological, market, or financial events that may influence growth, cash flow and risk. Table 5 is encouraging to investors, for the overall trend in cash flow margins has been clearly upward since 1990, a trend that reflects the secular growth in revenues and audiences noted above.

In addition to expected growth in cash flows, the amount investors are willing to pay for a given level of cash flow depends on a number of factors including interest rates, perceived risk, and their assessment of other available investment opportunities of a similar nature. Table 6 indicates that for these and other reasons, investors have in recent years -- since the 1991 recession in particular -- placed increasingly higher values on the cash flows being generated by radio stations.

The trend is familiar and quite similar to ones noted earlier in the context of our discussion of other measures of station value -- revenue, listeners and cash flow. The multiples in Table 6 measure the ratio of the cash value paid by investors in assorted station transactions to station revenue (billings) and cash flow. As with earlier measures, these multiples hit their low in 1991, but have increased subsequently. The trends indicate that investors are placing higher values on both station sales and cash flows, thereby reflecting their optimism about the future of the radio station business.¹⁷

A final indicator of how the market regards the commercial radio business is the trading performance and history of the equity securities of radio broadcasting multiple station owners. Fortunately, for our purposes, Paul Kagan Associates has kept track of a constant universe of radio broadcast companies in recent years. The trend in average stock values for that sample universe is quite consistent with expectations created by all of the foregoing data and analysis, inasmuch as the index rose from 3.6 in mid-December 1992 to 8.29 in mid-December 1994 -- a relative increase that far outstripped other broad market averages over the same period.¹⁸ By the end of July, 1995, the Kagan radio stock index had reached 12.58, thereby recording nearly a fourfold increase in less than four years.

¹⁷ These multiples give strong indications that investors are optimistic about the future growth of cash flows and not at all daunted by the prospects for risk associated with them.

¹⁸ See Paul Kagan Associates, "Broadcast Investor", No. 350, December 20, 1994 and earlier numbers for these and related trends.

TABLE 6

Cash Flow and Billings Multiples Paid by Radio Station Investors (1987-1994)

	Billings Multiple	Cash Flow Multiple
1987	3.0	9.3
1988	3.2	9.7
1989	3.0	9.5
1990	2.6	8.6
1991	2.1	7.4
1992	2.3	9.9
1993	2.8	10.8
1994	3.3	10.3

Source: Paul Kagan Associates, Radio Deal Record, 1995, p. 6

Paul Kagan Associates recently summarized the the financial prospects of radio broadcasters: "In terms of investment, radio's strong growth and cash flow margins, low capital expenditures and positive regulatory environment make it a favorite."¹⁹ Financial markets are recognizing the current strength and future prospects of the business. And, notwithstanding the optimism of most forecasts, results included in midyear financial reports of publicly traded companies indicate recent financial performance in excess if expectations.

IV. What impact will DARS have on various dimensions of the public interest?

In its Notice proposing rules and regulations to the govern the establishment of a DARS service, the Commission was both adamant and clear in its solicitation of data and analysis respecting the economic and financial impact of DARS. In several places and in different contexts, the Commission as a whole and in separate, individual statements expressed agreement with the case for promoting and enabling the introduction of new telecommunications technologies and service, while also extolling the general virtues and consumer benefits of competition in the marketplace. The Commission also recognized the possibility that DARS might "diminish the financial

¹⁹ Paul Kagan Associates, Inc. Radio Deal Record, 1995, p.1

ability of some terrestrial stations to provide local service".²⁰

The Commission has solicited comment and analysis on several dimensions of possible impact of DARS and on various components of the broad public interest -- for example, encouragement of new technologies; provision of new services to unserved and underserved areas; opportunities for economic development and improvement of the U.S. position in the international marketplace; and others. In this respect, the Commission indicated its intention to determine the effect of DARS on the broad public interest and the particular interests of the listening public; on the viability of terrestrial broadcasters; and, on the quantity and quality of local programming. Importantly, the Commission has also explicitly recognized that while these categories are related and may share common elements, they are by no means the same.²¹

As initially proposed, satellite DARS is a new multichannel, multiformat digital audio radio service with sound quality equivalent to compact disks. The service will be transmitted by satellite to supporting fixed and mobile terrestrial terminals located in the home, businesses and to vehicles. DARS will contend with terrestrial radio for the time and attention of audiences and listeners. In that respect, DARS will join a long list of communications media-related and other diverse leisure time alternatives available to consumers.

IV. A Impact of DARS on Economic Welfare.

New technologies create economic value for society (consumers and the owners of scarce resources) in numerous ways. As the Federal agency most responsible for evaluating the effects of new market entry and the introduction of new technologies emanating from the most dynamic sector of the economy, the Commission is well aware of the scope and nature of the benefits from new technologies and services and has recognized them on countless previous occasions. For example, the Commission has recognized on numerous occasions that new communications technologies and the markets developed by their commercial applications create jobs, new services and new sources of national income, while giving consumers more choices. It has also recognized that new technologies and new services also create pressures on

²⁰ The Commission expressed its concern for possible negative impact of DARS earlier this year when it allocated frequency bands to permit satellite-delivered digital audio radio service. It specifically noted the importance of a) the size of the DARS audience, b) the extent to which the DARS audience is diverted from terrestrial stations and c) the impact of such diversion on stations' revenue, cash flow and profit. See, Amendment of the Commission's Rules with Regard to the Establishment and Regulation of New Digital Audio Radio Services, 10 FCC Rcd 2310 (1995), paras. 22-25 (Allocation Order).

²¹ For example, the Commission made clear that potential adverse impact on terrestrial broadcasters does not equate with harm to the public interest and that the impact on end users -- listeners -- is paramount and without regard to the identity of the firms that create the value and make the services available. "The public interest in this regard is the provision of services of value to the listening public and includes the protection of competition, not competitors." NPRM, para. 11.